



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,013	09/27/2001	Patrick Joseph Bohrer	AUS920010312US1	2760

45502 7590 02/01/2011
DILLON & YUDELL LLP
8911 N. CAPITAL OF TEXAS HWY.,
SUITE 2110
AUSTIN, TX 78759

EXAMINER

AILES, BENJAMIN A

ART UNIT	PAPER NUMBER
----------	--------------

2442

MAIL DATE	DELIVERY MODE
-----------	---------------

02/01/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/965,013	Applicant(s) BOHRER ET AL.	
	Examiner BENJAMIN AILES	Art Unit 2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-7,10-15 and 21-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-7,10-15 and 21-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 13 December 2010 has been entered.
2. Claims 1, 4-7, 10-15 and 21-32 remain pending.

Claim Objections

3. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 29 and 30 have been renumbered 31 and 32.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Art Unit: 2442

6. Claims 21-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Regarding claims 21-23, the claim recites “computer-readable storage medium...” The “computer-readable storage medium” is given broadest reasonable interpretation in view of what is considered well known in the art. The broadest reasonable interpretation of a claim drawn to a computer readable medium, in this case a “computer-readable storage medium,” typically covers forms of non-transitory tangible media and transitory propagating signals per se in view of the ordinary and customary meaning of computer readable media. The computer-readable storage medium as claimed is not limited to tangible embodiments and therefore the claim is deemed non-statutory. The claim may be amended to narrow the claim to cover only statutory embodiments to overcome the rejection under 35 USC 101 by adding the limitation “non-transitory” to the claim.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claim 7, 10-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Chawla et al. (U.S. 6,876,668), hereinafter referred to as Chawla.

9. Regarding claim 7, Chawla teaches a data processing system, comprising:

a processor, memory, and a network interface connecting the server device to a switch via a link (fig. 3, communication devices);

wherein the network interface performs an initial negotiation that establishes an initial operating frequency of the link and thereafter determines an effective data rate of the server based on network traffic communicated between the server and the switch over the link (col. 5, lines 20-25 and col. 12, line 61 – col. 13, line 4);

wherein the network interface performs a subsequent negotiation to establish a modified operating frequency of the link responsive to determining the effective data rate is materially different than a current bandwidth of the link allocated for use by the server, wherein the modified operating frequency is closer to the effective data rate than the initial operating frequency (col. 13, ll. 20-24).

10. Regarding claim 10, Chawla teaches the data processing system wherein the initial and subsequent negotiation are compliant with the IEEE 802.3 standard (Chawla, col. 11, lines 25-36, Chawla discloses the use of wireless networks, IEEE 802.3 is considered just an example of a wireless network).

11. Regarding claim 11, Chawla teaches the data processing system wherein determining the effective data rate includes accumulating information indicative of the amount of network traffic during a specified interval and calculating an effective data rate based thereon (Chawla, col. 13, lines 20-27).

12. Regarding claim 12, Chawla teaches the data processing system further comprising, responsive to determining that the effective data rate is greater than a specified percentage of the current bandwidth, performing a subsequent negotiation to

Art Unit: 2442

establish a modified operating frequency, wherein the modified operating frequency is higher than the current operating frequency (Chawla, col. 13, lines 10-20).

13. Regarding claim 13, Chawla discloses the data processing system wherein the initial and subsequent negotiations are initiated by the central switch (Chawla, col. 13, lines 31-44).

14. Regarding claim 14, Chawla discloses the data processing system wherein the initial and subsequent negotiations are initiated by the server device (Chawla, col. 13, lines 31-44).

15. Regarding claim 15, Chawla discloses the data processing network comprising:
the data processing system of claim 7 (see rej. of claim 7);
the switch (fig. 3); and
the link (fig. 3).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

Art Unit: 2442

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

17. Claims 1 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chawla in view of Fedyk et al. (US 7,154,851 B1), hereinafter referred to as Fedyk.

18. Regarding claim 1, Chawla teaches a method of operating a data processing network, comprising:

performing an initial negotiation between a server and a switch to which the server is connected, wherein the initial negotiation establishes an initial operating frequency of a network link between the server and the switch (col. 5, lines 20-25 and col. 12, line 61 – col. 13, line 4);

measuring an effective data rate of the server based on network traffic communicated between the server and the switch over the network link (col. 12, line 61 – col. 13, line 4); and

Chawla teaches the negotiation and determination of an effective data rate of a current bandwidth of the link and performing subsequent negotiations to establish a modified operating frequency wherein the modified operating frequency is closer to the effective data rate than the initial operating frequency (col. 13, lines 20-24) but does not clearly recite wherein the negotiation is performed at the network link layer. However, in related art and in the same field of endeavor, Fedyk teaches a method for dynamically assigning bandwidth at a link layer level (fig. 2 and col. 3, line 61 - col. 4, line 3) wherein a path connection setup routine is performed based on available bandwidth and

Art Unit: 2442

link/class traffic engineering. One of ordinary skill in the art at the time of the applicants' invention would have found it obvious to implement the ability to optimize link layer negotiation as taught by Fedyk in combination with the teachings of Chawla which teaches the dynamic allocation of bandwidth. One of ordinary skill in the art would have been motivated to combine the teachings of Chawla and Fedyk in order to create a dynamic allocation of bandwidth method/system at a link level (Fedyk, col. 3, ll. 41-46).

19. Regarding claim 4, Chawla teaches the method wherein the initial and subsequent negotiation are compliant with the IEEE 802.3 standard (Chawla, col. 11, lines 25-36, Chawla discloses the use of wireless networks, IEEE 802.3 is considered just an example of a wireless network).

20. Regarding claim 5, Chawla teaches the method wherein measuring the effective data rate includes accumulating information indicative of the amount of network traffic over the link during a specified interval and calculating an effective data rate based thereon (Chawla, col. 13, lines 20-27).

21. Regarding claim 6, Chawla and Ravi teach the data processing system further comprising, responsive to determining that the effective data rate is greater than a specified percentage of the current bandwidth of the link, performing a subsequent link layer negotiation to establish a modified operating frequency, wherein the modified operating frequency is higher than the current operating frequency (Chawla, col. 13, lines 10-20).

22. Claims 21-23 and 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chawla in view of Ravi.

Art Unit: 2442

23. Regarding claim 21, Chawla teaches a computer program product, comprising:
a computer-readable storage medium (fig. 3, communication devices);

computer executable instructions, stored on the computer-readable storage medium, for conserving energy in a data processing network having a switch, a server, and a link connecting the switch to the server (fig. 3, network devices), the instructions comprising:

determining an effective data rate of the server based on network traffic communication between the server and the switch (col. 12, line 61 – col. 13, line 4); and

determining whether or not the effective data rate is materially different than a current bandwidth of the link allocated for use by the server (col. 13, ll. 20-24).

Chawla teaches the determination of an effective data rate of a current bandwidth of the link and performing subsequent negotiations to establish a modified operating frequency wherein the modified operating frequency is closer to the effective data rate than the initial operating frequency (col. 13, lines 20-24) but does not clearly recite the steps of “instructions that detect whether or not the link is underutilized by, instructions that, responsive to detecting that the link is underutilized, performs a negotiation to establish a reduced operating frequency of the link.” However, in related art and in the same field of endeavor, Ravi teaches a method for dynamically adjusting bandwidth rates based on performance characteristics, including a step for determining the possibility to change the effective data rate to below the capacity or decreasing bandwidth of a link as is possible (see column 7 of Ravi, lines 16-25). One of ordinary skill in the art at the time of the applicants’ invention would have found it obvious to

Art Unit: 2442

implement the ability to decrease the bandwidth capacity of a link as taught by Ravi in combination with the teachings of Chawla which teaches the dynamic allocation of bandwidth. One of ordinary skill in the art would have been motivated to combine the teachings of Chawla and Ravi in order to create a dynamic allocation of bandwidth method/system wherein it is desirable to provide efficient transmissions of multimedia streams which are deemed quite well known and used very often in the Internet realm (Ravi, col. 1, ll. 16-25).

24. Regarding claim 22, Chawla teaches the computer program product wherein determining the effective data rate of the server includes determining an amount of data traversing the link during a specified interval (Chawla, col. 13, lines 20-27).

25. Regarding claim 23, Chawla teaches the computer program product further comprising:

instructions that detect whether or not the link is over-utilized (Chawla, col. 13, lines 20-24); and

instructions that, responsive to detecting that link is over-utilized, increases an operating frequency of the link between the server and the switch (Chawla, col. 13, lines 27-30).

26. Regarding claims 27 and 30 Chawla teaches the determination of an effective data rate of a current bandwidth of the link and performing subsequent negotiations to establish a modified operating frequency wherein the modified operating frequency is closer to the effective data rate than the initial operating frequency (col. 13, lines 20-24) but does not clearly recite the steps of “wherein the modified operating frequency is a

Art Unit: 2442

lowest operating frequency accommodated by the link between the server and switch that is sufficient to handle the effective data rate.” However, in related art and in the same field of endeavor, Ravi teaches a method for dynamically adjusting bandwidth rates based on performance characteristics, including a step for determining the possibility to change the effective data rate to below the capacity or decreasing bandwidth of a link as is possible (see column 7 of Ravi, lines 16-25). One of ordinary skill in the art at the time of the applicants’ invention would have found it obvious to implement the ability to decrease the bandwidth capacity of a link as taught by Ravi in combination with the teachings of Chawla which teaches the dynamic allocation of bandwidth. One of ordinary skill in the art would have been motivated to combine the teachings of Chawla and Ravi in order to create a dynamic allocation of bandwidth method/system wherein it is desirable to provide efficient transmissions of multimedia streams which are deemed quite well known and used very often in the Internet realm (Ravi, col. 1, ll. 16-25).

27. Regarding claims 28 and 31, Chawla teaches the method of claim 1, and further comprising: automatically repeating, at specified intervals during the operation of the network, the determination of the effective data rate and contingent initiation of a subsequent negotiation to automatically and periodically modify the operating frequency to a lowest operating frequency compatible with the effective data rate (Chawla, col. 13, lines 20-27).

28. Regarding claims 29 and 32, Chawla does not explicitly teach the limitation. However in related art, Ravi teaches the method of claim 1, and further comprising: in

Art Unit: 2442

response to performing the subsequent link layer negotiation, decreasing an operating frequency and power consumption of a network interface of the server (col. 7, ll. 16-25, a lower power consumption is deemed a by-product of decreased bandwidth usage).

One of ordinary skill in the art would have been motivated to combine Chawla and Ravi in claim 26 under the same rationale set forth with respect to claim 24.

29. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chawla and Fedyk in view of Ravi.

30. Regarding claim 24 Chawla teaches the determination of an effective data rate of a current bandwidth of the link and performing subsequent negotiations to establish a modified operating frequency wherein the modified operating frequency is closer to the effective data rate than the initial operating frequency (col. 13, lines 20-24) but does not clearly recite the steps of “wherein the modified operating frequency is a lowest operating frequency accommodated by the link between the server and switch that is sufficient to handle the effective data rate.” However, in related art and in the same field of endeavor, Ravi teaches a method for dynamically adjusting bandwidth rates based on performance characteristics, including a step for determining the possibility to change the effective data rate to below the capacity or decreasing bandwidth of a link as is possible (see column 7 of Ravi, lines 16-25). One of ordinary skill in the art at the time of the applicants’ invention would have found it obvious to implement the ability to decrease the bandwidth capacity of a link as taught by Ravi in combination with the teachings of Chawla which teaches the dynamic allocation of bandwidth. One of ordinary skill in the art would have been motivated to combine the teachings of Chawla

Art Unit: 2442

and Ravi in order to create a dynamic allocation of bandwidth method/system wherein it is desirable to provide efficient transmissions of multimedia streams which are deemed quite well known and used very often in the Internet realm (Ravi, col. 1, ll. 16-25).

31. Regarding claim 25, Chawla teaches the method of claim 1, and further comprising: automatically repeating, at specified intervals during the operation of the network, the determination of the effective data rate and contingent initiation of a subsequent negotiation to automatically and periodically modify the operating frequency to a lowest operating frequency compatible with the effective data rate (Chawla, col. 13, lines 20-27).

32. Regarding claim 26, Chawla does not explicitly teach the limitation. However in related art, Ravi teaches the method of claim 1, and further comprising: in response to performing the subsequent link layer negotiation, decreasing an operating frequency and power consumption of a network interface of the server (col. 7, ll. 16-25, a lower power consumption is deemed a by-product of decreased bandwidth usage). One of ordinary skill in the art would have been motivated to combine Chawla and Ravi in claim 26 under the same rationale set forth with respect to claim 24.

Response to Arguments

33. Applicant's arguments, see remarks, filed 13 December 2010, with respect to the rejection(s) of claim(s) 1 under 35 USC 103(a) in view of Chawla et al. (U.S. 6,876,668), and Ravi et al. (US 6,292,834 B1), specifically with respect to (A) "performing an initial link layer negotiation" and (C) "performing a subsequent link layer negotiation to establish a modified operating frequency" have been fully considered and are

Art Unit: 2442

persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Chawla and Fedyk (US 7,154,851).

34. Applicant's argument (B) with respect to claim 1 under 35 USC 103(a) in view of Chawla and Ravi with respect to "measuring an effective data rate" is not deemed persuasive. The examiner submits the rejection of this limitation should be maintained for the same reasons set forth in the Examiner Answer mailed 05 August 2008 and affirmed by the BPAI on 28 October 2010. The examiner submits that the "measuring" of an effective data rate is deemed functionally equivalent to prior claimed language of "determining" an effective data rate. The examiner submits that at least what is taught by the Chawla patent is within the scope of the claim limitation. Chawla teaches the determination of an effective data rate based on network traffic communicated over a link wherein Chawla teaches in column 12, line 61 – column 13, line 4 wherein it is determined if a requested resource (i.e. 100 Kbps bandwidth) is available. Therefore, the communication link is tested to adequately determine whether an effective data rate, in this embodiment 100 Kbps bandwidth, is actually available. If available, the requested bandwidth is negotiated and granted. Therefore, Chawla at least teaches determining of an effective data rate (i.e. allocate 100 Kbps bandwidth) based on network traffic communicated over a link (i.e. determine that the requested resource is available for use).

35. No further arguments were presented with respect to independent claims 7 and 21.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin Ailes whose telephone number is (571)272-3899. The examiner can normally be reached Monday-Friday, IFP Hoteling schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. A. A./
Examiner, Art Unit 2442

/KEVIN BATES/
Primary Examiner, Art Unit 2456